

**ABSTRACT**

By this invention, a plant β -ketoacyl-CoA synthase
condensing enzyme is provided free from intact cells of
5 said plant and capable of catalyzing the production of very
long chain fatty acid molecules. Also contemplated are
constructs comprising the nucleic acid sequence and a
heterologous DNA sequence not naturally associated with the
condensing enzyme encoding sequences, and which provide for
10 at least transcription of a plant condensing enzyme
encoding sequence in a host cell. In this fashion very
long chain fatty acid molecules may be produced in a plant
cell. Included are methods of modifying the composition of
very long chain fatty acid molecules in a plant cell.